10/601,871

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FILE 'HOME' ENTERED AT 15:00:53 ON 23 JUN 2005

=> set abbr on perm
SET COMMAND COMPLETED

=> set plurals on perm
SET COMMAND COMPLETED

=> file inpadoc
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     0.21       0.21

FILE 'INPADOC' ENTERED AT 15:01:24 ON 23 JUN 2005
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FILE LAST UPDATED:          09 JUN 2005      <20050609/UP>
                            09 JUN 2005      <20050609/UPLS>
MOST RECENT INPADOC WEEK:       200523
FILE COVERS 1968 TO DATE.

>>>  FOR STATISTIC OF CURRENT WEEK'S NEW ENTRIES,
     ENTER HELP UPS  <<<

>>>  STATISTIC FOR UPDATES OF PUBLICATION/PATENT KIND CODES
     A. SORTED BY COUNTRY:
http://www.stn-international.de/stndatabases/details/inpadoc/fkd1
     B. SORTED BY DATE:
http://www.stn-international.de/stndatabases/details/inpadoc/fkd2
                                                                    <<<
>>>  FOR CHANGES IN INPADOC  ---> SEE HELP CHANGE
                      (LAST UPDATED MAY 13, 2005) <<<

>>>  NEW FAMILY SDI ---> see
http://www.stn-international.de/stndatabases/details/inpadoc_fam_sdi.pdf

  The EPO informed us that about 70% of the records of INPADOC
  update week 24/2005 (update date June 16, 2005) is missing
  the IPC symbols.
  The complete update will have to be created again by the EPO.
  Once it is received, we will exchange the data for week 24/2005.
  All SDIs will be processed again with the exchanged data.
  We will credit the original SDI run on week 24/2005.
  The update for week 25/2005 will be processed after the exchange
  of week 24/2005 has taken place.

=> s wo 9532095/pn
L1            1 WO 9532095/PN
                (WO9532095/PN)

=> d l1 1 all

L1    ANSWER 1 OF 1  INPADOC  COPYRIGHT 2005 EPO on STN

LEVEL 1
AN    41113607 INPADOC  UP 20020905  UW 200235
TI    FILM CONTAINING ALPHA-OLEFIN/VINYL AROMATIC COPOLYMER.
IN    BRADFUTE, JOHN, G.; CHILDRESS, BLAINE, C.; HAVENS, MARVIN, R.; LULHAM,
      MICHAEL, C.; MOFFITT, RONALD, D.; NELSON, MARTINDALE; NORPOTH, LAWRENCE,
      R.; ROBERTS, WILLIAM, P.; TONEY, GLORIA, G.; WOFFORD, GEORGE, D.
INS   BRADFUTE JOHN G; CHILDRESS BLAINE C; HAVENS MARVIN R; LULHAM MICHAEL C;
      MOFFITT RONALD D; NELSON MARTINDALE; NORPOTH LAWRENCE R; ROBERTS WILLIAM
      P; TONEY GLORIA G; WOFFORD GEORGE D
INA   US; US; US; US; US; US; US; US; US; US
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PA W.R. GRACE & CO.-CONN.; BRADFUTE, JOHN, G.; CHILDRESS, BLAINE, C.; HAVENS, MARVIN, R.; LULHAM, MICHAEL, C.; MOFFITT, RONALD, D.; NELSON, MARTINDALE; NORPOTH, LAWRENCE, R.; ROBERTS, WILLIAM, P.; TONEY, GLORIA, G.; WOFFORD, GEORGE, D.
PAS GRACE W R & CO; BRADFUTE JOHN G; CHILDRESS BLAINE C; HAVENS MARVIN R; LULHAM MICHAEL C; MOFFITT RONALD D; NELSON MARTINDALE; NORPOTH LAWRENCE R; ROBERTS WILLIAM P; TONEY GLORIA G; WOFFORD GEORGE D
PAA US; US; US; US; US; US; US; US; US; US
TL English; French
LA English
DT Patent
PIT WOA1 PUBL.OF THE INT.APPL. WITH INT.SEARCH REPORT
PI **WO 9532095 A1 19951130**
DS RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE
W: AU BR CA MX US
AI WO 1995-US6198 A 19950519
PRAI US 1994-248799 A 19940525 (EDPR 19990317)
OSCA 124:148226
OSDW 96-020438
ICM (6) B32B027-32
ICS (6) B65D065-40; (6) C08J005-18; (6) C08L023-04; (6) C08L023-02
EPC B32B27/08; C08J5/18+L23/08; C08L23/08; C08L23/14

=> s (substantially random or pseudo(1w)random)(5w)copolymer or interpolymer) and (stretch packag? or wrap?)
UNMATCHED RIGHT PARENTHESIS 'TERPOLYMER) AND'
The number of right parentheses in a query must be equal to the number of left parentheses.

=> s (substantially random or pseudo(1w)random)(5w)(copolymer or interpolymer) and (stretch packag? or wrap?)
179023 SUBSTANTIALLY
29308 RANDOM
7 RANDOMS
29309 RANDOM
(RANDOM OR RANDOMS)
224 SUBSTANTIALLY RANDOM
(SUBSTANTIALLY(W)RANDOM)
9684 PSEUDO
2 PSEUDOS
9686 PSEUDO
(PSEUDO OR PSEUDOS)
29308 RANDOM
7 RANDOMS
29309 RANDOM
(RANDOM OR RANDOMS)
48757 COPOLYMER
27274 COPOLYMERS
72105 COPOLYMER
(COPOLYMER OR COPOLYMERS)
1045 INTERPOLYMER
966 INTERPOLYMERS
1878 INTERPOLYMER
(INTERPOLYMER OR INTERPOLYMERS)
181 (SUBSTANTIALLY RANDOM OR PSEUDO(1W)RANDOM)(5W)(COPOLYMER OR INTERPOLYMER)
7922 STRETCH
807 STRETCHES
8626 STRETCH
(STRETCH OR STRETCHES)
167533 PACKAG?
143 STRETCH PACKAG?

```
                (STRETCH(W)PACKAG?)
         32595 WRAP?
L2           0 (SUBSTANTIALLY RANDOM OR PSEUDO(1W)RANDOM)(5W)(COPOLYMER OR
               INTERPOLYMER) AND (STRETCH PACKAG? OR WRAP?)

=> s (strain(1a)(change or differen?))(4a)film
         25365 STRAIN
          6507 STRAINS
         30605 STRAIN
                (STRAIN OR STRAINS)
         91499 CHANGE
         43615 CHANGES
        127648 CHANGE
                (CHANGE OR CHANGES)
        355302 DIFFEREN?
        345539 FILM
         40553 FILMS
        371802 FILM
                (FILM OR FILMS)
L3           3 (STRAIN(1A)(CHANGE OR DIFFEREN?))(4A)FILM

=> d l3 1-3 ibib abs
'ABS' IS NOT A VALID FORMAT FOR FILE 'INPADOC'

The following are valid formats:

T12 T12 T12
STD ------------BIB plus IND (highest level)
STD.M ----------STD for all levels
ALL ------------STD         (highest level)
ALL.M ----------ALL for all levels
ALL(n)----------ALL for level n
IALL------------ALL indented with text labels
IALL.M----------ALL for all levels, indented with text labels
BIB-------------AN, ED, UP, TI, IN, INS, INA, PA, PAS, PAA, LA, TL,
                DT, PIT, PI, DS, AI, PRAI, OSCA, OSDW
BIB.M-----------BIB for all levels (default)
IBIB------------BIB, indented with text labels
IBIB.M----------BIB.M, indented with text labels
IND-------------AN, IC (ICM, ICS), ICA, ICI, EPC, NCL
IPC-------------IC (ICM, ICS), ICA, ICI
LS--------------AN, Legal Status
MAX-------------ALL.M plus PRAIT, AIT, FDT, LS
SCAN------------TI (random display without AN)
TRIAL (TRI)-----FA, TI
SAMPLE (SAM)----FA, TI
FAM-------------Family format (tabular form)
EFAM------------Extended Family format
FFAM------------Full Family format
FFAM.pc---------FFAM equivalent for countries, e.g. FFAM.US for US equivalents
CFAM------------Condensed Family format
DFAM------------Delimited Family format
LFAM (FAMS)-----Legal States Family format

ENTER DISPLAY FORMAT (BIB.M):all

L3    ANSWER 1 OF 3  INPADOC  COPYRIGHT 2005 EPO on STN

LEVEL 1
AN    252972679 INPADOC  ED 20050127  EW 200504  UP 20050519  UW 200520
TI    Method and apparatus for adjustably inducing biaxial strain.
IN    VESTEL MICHAEL J.; OSHATZ DARYL PATRICK
INS   VESTEL MICHAEL J; OSHATZ DARYL PATRICK
INA   US; US
```

PA THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
PAS UNIV CALIFORNIA
PAA US
TL English
DT Patent
PIT USAA PATENT APPLICATION PUBLICATION (PRE-GRANT)
PI US 2005005705 AA 20050113
AI US 2004-837027 A 20040430
PRAI US 2004-837027 A 20040430 (EDPR 20050127)
US 2003-467163P P 20030430 (EDPR 20050127)
ICM (7) G01D001-16
ICS (7) G01D007-02
EPC F03G7/06B
NCL 073789; X07379

L3 ANSWER 2 OF 3 INPADOC COPYRIGHT 2005 EPO on STN

LEVEL 1
AN 230903511 INPADOC ED 20040408 EW 200415 UP 20040506 UW 200419
TI Film for fastening cargo during transportation and method for fastening cargo using the same.
IN ARIMOTO MASASHI; KIMURA TOMOHIKO; TAKEYAMA SABUROU
INS ARIMOTO MASASHI; KIMURA TOMOHIKO; TAKEYAMA SABUROU
INA JP; JP; JP
PA MITSUI CHEMICALS, INC.
PAS MITSUI CHEMICALS INC
PAA JP
DT Patent
PIT USAA PATENT APPLICATION PUBLICATION (PRE-GRANT)
PI US 2004048085 AA 20040311
AI US 2003-601871 A 20030624
PRAI JP 2002-182996 A 20020624 (EDPR 20040130)
OSDW 2004-281175
ICM (7) B32B027-08
NCL 428515; X428521

L3 ANSWER 3 OF 3 INPADOC COPYRIGHT 2005 EPO on STN

LEVEL 3
AN 152561396 INPADOC ED 20041104 EW 200445 UP 20041104 UW 200445
TI Hose incorporating an improved sealing layer.
IN MATTHEW VERNON * RIDOLFI; ERIC JOSEPH * DAVIS; GERARD ANTHONY * HALL; SIMON PETER ALEXANDER * THORP; JOEL ARON * WITZ; RAYMOND NICHOLAS * BURKE
INS RIDOLFI MATTHEW VERNON; DAVIS ERIC JOSEPH; HALL GERARD ANTHONY; THORP SIMON PETER ALEXANDER; WITZ JOEL ARON; BURKE RAYMOND NICHOLAS
INA GB; GB; GB; GB; GB; GB
PA * BHP PETROLEUM PTY LTD
PAS BHP PETROLEUM PTY LTD
PAA AU
TL English
DT Patent
PIT GBB2 PATENT GRANTED
PI GB 2366348 B2 20041103
AI GB 2001-9013 A 20010410
PRAI GB 2000-14353 A 20000612 (EDPR 20000905)
ICM (7) F16L011-112
ICS (7) F16L011-115
EPC F16L11/08D1; F16L33/23
NCL F2P PC26 PC26; F2P P1A15A PC26; F2P P1A15B PC26;
F2P P1A17 PC26; F2P P1A18B PC26; F2P P1A33 PC26;
F2P P1A35 PC26; F2P P1B7B PC26; F2P P1B7C PC26;
F2P P1B7D PC26; F2P P1B7E PC26; F2P P1B7L PC26;
F2P P1B8 PC26; U1S S1883; U1S S1884; U1S S2315

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=> file uspatall caplus japio
COST IN U.S. DOLLARS                                    SINCE FILE      TOTAL
                                                           ENTRY    SESSION
FULL ESTIMATED COST                                        11.88      12.09

FILE 'USPATFULL' ENTERED AT 15:07:13 ON 23 JUN 2005
CA INDEXING COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'USPAT2' ENTERED AT 15:07:13 ON 23 JUN 2005
CA INDEXING COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'CAPLUS' ENTERED AT 15:07:13 ON 23 JUN 2005
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PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'JAPIO' ENTERED AT 15:07:13 ON 23 JUN 2005
COPYRIGHT (C) 2005 Japanese Patent Office (JPO)- JAPIO

=> s (substantially random or pseudo(1w)random)(5w)(copolymer or interpolymer) and
(stretch packag? or stretch wrap?)
L4          16 (SUBSTANTIALLY RANDOM OR PSEUDO(1W) RANDOM)(5W)(COPOLYMER OR
               INTERPOLYMER) AND (STRETCH PACKAG? OR STRETCH WRAP?)

=> d 14 1-16 ibib abs

L4   ANSWER 1 OF 16  USPATFULL on STN
ACCESSION NUMBER:        2004:190907  USPATFULL
TITLE:                   Cross-copolymerized olefin/aromatic vinyl
                         compound/diene copolymer and process for its production
INVENTOR(S):             Arai, Toru, Machida-shi, JAPAN
                         Otsu, Toshiaki, Machida-shi, JAPAN
                         Nakajima, Masataka, Machida-shi, JAPAN
PATENT ASSIGNEE(S):      Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, JAPAN
                         (non-U.S. corporation)

                              NUMBER        KIND    DATE
                         ---------------- ------ --------
PATENT INFORMATION:      US 2004147681      A1   20040729
                         US 6878779         B2   20050412
APPLICATION INFO.:       US 2004-759084     A1   20040120  (10)
RELATED APPLN. INFO.:    Division of Ser. No. US 2002-78668, filed on 21 Feb
                         2002, PENDING Continuation-in-part of Ser. No. US
                         2001-831358, filed on 14 May 2001, GRANTED, Pat. No. US
                         6566453 A 371 of International Ser. No. WO 2000-JP6284,
                         filed on 13 Sep 2000, UNKNOWN

                               NUMBER        DATE
                         ------------------ --------
PRIORITY INFORMATION:    JP 1999-258618     19990913
                         JP 2000-184053     20000620
                         JP 2001-44715      20010221
                         JP 2001-221247     20010723
DOCUMENT TYPE:           Utility
FILE SEGMENT:            APPLICATION
LEGAL REPRESENTATIVE:    OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C., 1940
                         DUKE STREET, ALEXANDRIA, VA, 22314
NUMBER OF CLAIMS:        23
EXEMPLARY CLAIM:         1
NUMBER OF DRAWINGS:      10 Drawing Page(s)
LINE COUNT:              2661
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB     A highly uniform vinyl compound polymer-cross-copolymerized
```

olefin/styrene/diene copolymer excellent in processability, mechanical properties, high temperature properties, compatibility and transparency, and its composition and a process for its production, are provided. This copolymer is a crossed polymer obtained by cross-copolymerizing an olefin/styrene/diene copolymer having a styrene content of from 0.03 mol % to 96 mol %, a diene content of from 0.0001 mol % to 3 mol % and the rest being an olefin, with an olefin/aromatic vinyl compound copolymer.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 2 OF 16 USPATFULL on STN
ACCESSION NUMBER: 2004:134051 USPATFULL
TITLE: Process for producing olefin/aromatic vinyl compound copolymer
INVENTOR(S): Arai, Toru, Tokyo, JAPAN
Otsu, Toshiaki, Tokyo, JAPAN
Nakajima, Masataka, Tokyo, JAPAN

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2004102588	A1	20040527	
APPLICATION INFO.:	US 2003-477548	A1	20031113	(10)
	WO 2002-JP4711		20020515	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 2001-144266	20010515

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C., 1940 DUKE STREET, ALEXANDRIA, VA, 22314
NUMBER OF CLAIMS: 21
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 4 Drawing Page(s)
LINE COUNT: 1381
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB It is to provide a process for producing an olefin/aromatic vinyl compound copolymer which is excellent in transparency and which satisfies flexibility and heat resistance simultaneously, with a practically high productivity.

A process for producing an olefin/aromatic vinyl compound copolymer, which comprises carrying out polymerization in such a manner that at least one of conditions (a) the polymerization is carried out to an aromatic vinyl compound monomer conversion ratio of at least 50 mol % when the polymerization is completed, and (b) the polymer concentration is at least 10 mass % relative to the polymerization solution when the polymerization is completed, is satisfied, and the olefin partial pressure is changed so that the olefin partial pressure when the polymerization is completed is from 1.3 to 20 times the olefin partial pressure at the initiation of the polymerization. An olefin/aromatic vinyl compound copolymer obtained by the process, and an olefin/aromatic vinyl compound copolymer excellent in transparency, heat resistance and moldability.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 3 OF 16 USPATFULL on STN
ACCESSION NUMBER: 2003:319460 USPATFULL
TITLE: Articles prepared from hydrogenated block copolymers
INVENTOR(S): Handlin, Dale Lee, JR., Houston, TX, UNITED STATES
Willis, Carl Lesley, Houston, TX, UNITED STATES
Groot, Hendrik de, Ottignies Louvain-La Neuve, BELGIUM
Clawson, Margaret Ann Burns, Houston, TX, UNITED STATES

Joly, Gert, Ottignies Louvain-La Neuve, BELGIUM
Maris, Catherine, Ottignies Louvain-La Neuve, BELGIUM
Djiauw, Lie, Houston, TX, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003225209	A1	20031204
APPLICATION INFO.:	US 2003-453993	A1	20030604 (10)

RELATED APPLN. INFO.: Continuation of Ser. No. US 2003-454237, filed on 4 Jun 2003, PENDING

	NUMBER	DATE
PRIORITY INFORMATION:	US 2002-385663P	20020604 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: KRATON POLYMERS U.S. LLC, WESTHOLLOW TECHNOLOGY CENTER, 3333 HIGHWAY 6 SOUTH, HOUSTON, TX, 77082
NUMBER OF CLAIMS: 53
EXEMPLARY CLAIM: 1
LINE COUNT: 1233
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention relates to articles prepared from novel anionic block copolymers of mono alkenyl arenes and conjugated dienes, and to blends of such block copolymers with other polymers. The block copolymers are selectively hydrogenated and have mono alkenyl arene end blocks and conjugated diene mid blocks. The block copolymer may be blended with at least one other polymer selected from the group consisting of olefin polymers, styrene polymers, amorphous resins and engineering thermoplastic resins.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 4 OF 16 USPATFULL on STN
ACCESSION NUMBER: 2003:208057 USPATFULL
TITLE: Compositions comprising hydrogenated block copolymers and end-use applications thereof
INVENTOR(S): Donald, Robert J., Midland, MI, UNITED STATES
Hahn, Stephen F., Midland, MI, UNITED STATES
Pate, James E., III, Sanford, MI, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003144418	A1	20030731
APPLICATION INFO.:	US 2002-304146	A1	20021125 (10)

RELATED APPLN. INFO.: Division of Ser. No. US 2001-944423, filed on 31 Aug 2001, PENDING
DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: THE DOW CHEMICAL COMPANY, INTELLECTUAL PROPERTY SECTION, P. O. BOX 1967, MIDLAND, MI, 48641-1967
NUMBER OF CLAIMS: 8
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 3 Drawing Page(s)
LINE COUNT: 2382
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Flexible hydrogenated block copolymers can be successfully used in a variety of applications including films, profiles, sheets, coatings, injection molded articles, blow or rotational molded articles and pultruded articles.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 5 OF 16 USPATFULL on STN

ACCESSION NUMBER: 2003:137123 USPATFULL
TITLE: Cross-copolymerized olefin/aromatic vinyl/diene copolymer and process for producing the same
INVENTOR(S): Arai, Toru, Machida, JAPAN
Nakajima, Masataka, Machida, JAPAN
Otsu, Toshiaki, Machida, JAPAN
PATENT ASSIGNEE(S): Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, JAPAN (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6566453	B1	20030520	
	WO 2001019881		20010322	
APPLICATION INFO.:	US 2001-831358		20010514	(9)
	WO 2000-JP6284		20000913	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1999-258618	19990913
	JP 2000-184053	20000620

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Seidleck, James J.
ASSISTANT EXAMINER: Asinovsky, Olga
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.
NUMBER OF CLAIMS: 78
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 9 Drawing Figure(s); 8 Drawing Page(s)
LINE COUNT: 2129
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A highly uniform vinyl compound polymer-cross-copolymerized olefin/styrene/diene copolymer excellent in processability, mechanical properties, high temperature properties, compatibility and transparency, and its composition and a process for its production, are provided. This copolymer is a crossed polymer obtained by cross-copolymerizing an olefin/styrene/diene copolymer having a styrene content of from 0.03 mol % to 96 mol %, a diene content of from 0.0001 mol % to 3 mol % and the rest being an olefin, with an olefin/aromatic vinyl compound copolymer.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 6 OF 16 USPATFULL on STN
ACCESSION NUMBER: 2003:123386 USPATFULL
TITLE: Cross-copolymerized olefin/styrene/diene copolymer, process for the production of the same and uses thereof
INVENTOR(S): Arai, Toru, Tokyo, JAPAN
Nakajima, Masataka, Tokyo, JAPAN
Otsu, Toshiaki, Tokyo, JAPAN
PATENT ASSIGNEE(S): Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, JAPAN (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6559234	B1	20030506	
	WO 2000037517		20000629	
APPLICATION INFO.:	US 2001-831380		20010517	(9)
	WO 1999-JP7239		19991222	

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1998-365362	19981222
	JP 1999-258618	19990913

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED

PRIMARY EXAMINER: Seidleck, James J.
ASSISTANT EXAMINER: Asinovsky, Olga
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.
NUMBER OF CLAIMS: 86
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 12 Drawing Figure(s); 11 Drawing Page(s)
LINE COUNT: 4150
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention firstly provides a novel olefin/styrene/diene type cross-copolymer having excellent physical properties and mechanical properties, and a novel, efficient and economically excellent process for its production. Further, it provides an efficient and economically excellent process for producing various cross-copolymers such as an olefin/diene type cross-copolymer.

The present invention secondly provides various resin compositions or processed products containing cross-copolymers, having problems of various conventional resin compositions or processed products solved and improved, as applications of cross-copolymers of the present invention.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 7 OF 16 USPATFULL on STN
ACCESSION NUMBER: 2002:288259 USPATFULL
TITLE: Cross-copolymerized olefin/aromatic vinyl compound/diene copolymer and process for its production
INVENTOR(S): Arai, Toru, Tokyo, JAPAN
Otsu, Toshiaki, Tokyo, JAPAN
Nakajima, Masataka, Tokyo, JAPAN
PATENT ASSIGNEE(S): Denki Kagaku Kogyo Kabushiki Kaisha, Chiyoda-ku, JAPAN (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002161130	A1	20021031
	US 6803422	B2	20041012
APPLICATION INFO.:	US 2002-78668	A1	20020221 (10)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 2001-831358, filed on 14 May 2001, PENDING A 371 of International Ser. No. WO 2000-JP6284, filed on 13 Sep 2000, UNKNOWN

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1999-258618	19990913
	JP 2000-184053	20000620
	JP 2001-44715	20010221
	JP 2001-221247	20010723

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC, FOURTH FLOOR, 1755 JEFFERSON DAVIS HIGHWAY, ARLINGTON, VA, 22202
NUMBER OF CLAIMS: 23
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 10 Drawing Page(s)
LINE COUNT: 2656
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A highly uniform vinyl compound polymer-cross-copolymerized olefin/styrene/diene copolymer excellent in processability, mechanical properties, high temperature properties, compatibility and transparency, and its composition and a process for its production, are provided. This copolymer is a crossed polymer obtained by cross-copolymerizing an olefin/styrene/diene copolymer having a styrene content of from 0.03 mol % to 96 mol %, a diene content of from 0.0001 mol % to 3 mol % and the

rest being an olefin, with an olefin/aromatic vinyl compound copolymer.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 8 OF 16 USPATFULL on STN
ACCESSION NUMBER: 2002:250975 USPATFULL
TITLE: Elastic films made from alpha-olefin/vinyl aromatic and/or aliphatic or cycloaliphatic vinyl or vinylidene
INVENTOR(S): Cheung, Yunwa W., Lake Jackson, TX, UNITED STATES
Guest, Martin J., Lake Jackson, TX, UNITED STATES
Van Volkenburgh, William R., Lake Jackson, TX, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002136916	A1	20020926
APPLICATION INFO.:	US 2002-57176	A1	20020125 (10)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1999-317390, filed on 24 May 1999, GRANTED, Pat. No. US 6376095

	NUMBER	DATE
PRIORITY INFORMATION:	US 1998-88974P	19980611 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: THE DOW CHEMICAL COMPANY, INTELLECTUAL PROPERTY SECTION, 2301 N BRAZOSPORT BLVD, FREEPORT, TX, 77541-3257
NUMBER OF CLAIMS: 26
EXEMPLARY CLAIM: 30
LINE COUNT: 2325
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention pertains to elastic films having at least one layer comprising a **substantially random interpolymer** or a blend thereof. The interpolymer comprises polymer units derived from at least C.sub.2-20 α-olefin and (i) at least one vinyl aromatic monomer, or (ii) at least one aliphatic or cycloaliphatic vinyl or vinylidene monomer, or (iii) a combination of at least one aromatic vinyl monomer and at least one aliphatic or cycloaliphatic vinyl or vinylidene monomer. The interpolymer may also comprise one or more ethylenically unsaturated polymerizable monomers other than those previously mentioned. The elastic films have a recovery in the cross direction of greater than or equal to about 80% and has a recovery in the machine direction of greater than or equal to about 60%.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 9 OF 16 USPATFULL on STN
ACCESSION NUMBER: 2002:152745 USPATFULL
TITLE: Ethylene/aromatic vinyl copolymer and molded product thereof
INVENTOR(S): Arai, Toru, Machida, JAPAN
Nakajima, Masataka, Machida, JAPAN
Otsu, Toshiaki, Machida, JAPAN
Oda, Takeshi, Machida, JAPAN
Naoe, Takanori, Machida, JAPAN
Nishitoba, Yukiko, Machida, JAPAN
PATENT ASSIGNEE(S): Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, JAPAN (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6410673	B1	20020625
	WO 2000023484		20000427

APPLICATION INFO.: US 2000-581812 20000619 (9)
WO 1999-JP5733 19991018
20000619 PCT 371 date

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1998-29755	19981019
	JP 1999-68662	19990315
	JP 1999-96002	19990402

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Teskin, Fred
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.
NUMBER OF CLAIMS: 21
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 1 Drawing Figure(s); 1 Drawing Page(s)
LINE COUNT: 1863
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB An ethylene-aromatic vinyl compound copolymer characterized by satisfying the following conditions:

(1) the aromatic vinyl compound content is from 0.5 mol % to 10 mol %;

(2) as measured with respect to a molded product having a thickness of 0.2 mm, the haze is at most 14%, or the total light transmittance is at least 90%;

(3) an ethylene-aromatic vinyl compound copolymer characterized in that the relation of the aromatic vinyl compound content and the glass transition point (Tg) obtained by an inflection point method as observed at a temperature of at least -50° C. by a differential scanning calorimeter (DSC), satisfies the following formula (1):

-20+1.00St>Tg>-30+1.05St Formula (1)

wherein St represents the aromatic vinyl compound content (molar fraction %) in the copolymer; and

(4) the weight average molecular weight is from 140,000 to 500,000 when the aromatic vinyl compound content is from 5 mol % to 10 mol %, or from 60,000 to 500,000 when the content is from 0.5 mol % to less than 5 mol %.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 10 OF 16 USPATFULL on STN
ACCESSION NUMBER: 2002:119993 USPATFULL
TITLE: Compositions comprising hydrogenated block copolymers and end-use applications thereof
INVENTOR(S): Donald, Robert J., Midland, MI, UNITED STATES
Hahnfeld, Jerry L., Midland, MI, UNITED STATES
Parsons, Gary D., Midland, MI, UNITED STATES
Hahn, Stephen F., Midland, MI, UNITED STATES
Patel, Rajen M., Lake Jackson, TX, UNITED STATES
Esneault, Calvin P., Baton Rouge, LA, UNITED STATES
Phipps, Laura M., Rochelle, VA, UNITED STATES
Pate, James E., III, Sanford, MI, UNITED STATES
Bhattacharjee, Debkumar, Lake Jackson, TX, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002061982	A1	20020523
APPLICATION INFO.:	US 2001-944423	A1	20010831 (9)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 2000-575063, filed on 19 May 2000, PENDING

	NUMBER	DATE
PRIORITY INFORMATION:	US 1999-139075P	19990611 (60)
	US 1999-146008P	19990728 (60)
	US 2000-193313P	20000330 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: THE DOW CHEMICAL COMPANY, INTELLECTUAL PROPERTY SECTION, P. O. BOX 1967, MIDLAND, MI, 48641-1967
NUMBER OF CLAIMS: 22
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 3 Drawing Page(s)
LINE COUNT: 2508
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Flexible hydrogenated block copolymers can be successfully used in a variety of applications including films, profiles, sheets, coatings, injection molded articles, blow or rotational molded articles and pultruded articles.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 11 OF 16 USPATFULL on STN
ACCESSION NUMBER: 2002:88131 USPATFULL
TITLE: Elastic films made from alpha-olefin/vinyl aromatic and/or aliphatic or cycloaliphatic vinyl or vinylidene interpolymers
INVENTOR(S): Cheung, Yunwa W., Lake Jackson, TX, United States
Guest, Martin J., Lake Jackson, TX, United States
Van Volkenburgh, William R., Lake Jackson, TX, United States
PATENT ASSIGNEE(S): The Dow Chemical Company, Midland, MI, United States (U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6376095	B1	20020423	
APPLICATION INFO.:	US 1999-317390		19990524	(9)

	NUMBER	DATE
PRIORITY INFORMATION:	US 1998-88974P	19980611 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Thibodeau, Paul
ASSISTANT EXAMINER: Tarazano, D. Lawrence
NUMBER OF CLAIMS: 21
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 0 Drawing Figure(s); 0 Drawing Page(s)
LINE COUNT: 2318
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention pertains to elastic films having at least one layer comprising a **substantially random interpolymer** or a blend thereof. The interpolymer comprises polymer units derived from at least C.sub.2-20 α-olefin and (i) at least one vinyl aromatic monomer, or (ii) at least one aliphatic or cycloaliphatic vinyl or vinylidene monomer, or (iii) a combination of at least one aromatic vinyl monomer and at least one aliphatic or cycloaliphatic vinyl or vinylidene monomer. The interpolymer may also comprise one or more ethylenically unsaturated polymerizable monomers other than those previously mentioned. The elastic films have a recovery in the cross direction of greater than or equal to about 80% and has a

recovery in the machine direction of greater than or equal to about 60%.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 12 OF 16 USPATFULL on STN
ACCESSION NUMBER: 2001:128891 USPATFULL
TITLE: Film and **stretch packaging** film
INVENTOR(S): Arai, Toru, Tokyo, Japan
Nakamura, Akihiko, Tokyo, Japan
Suzuki, Shigeru, Tokyo, Japan
Otsu, Toshiaki, Tokyo, Japan
Okamoto, Akio, Tokyo, Japan
PATENT ASSIGNEE(S): DENKI KAGAKU KOGYO KABUSHIKI KAISHA, Tokyo, Japan
(non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2001012879	A1	20010809
	US 6417308	B2	20020709
APPLICATION INFO.:	US 2001-785285	A1	20010220 (9)

RELATED APPLN. INFO.: Division of Ser. No. US 1998-163603, filed on 30 Sep 1998, PENDING

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1997-268402	19971001

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC, FOURTH FLOOR, 1755 JEFFERSON DAVIS HIGHWAY, ARLINGTON, VA, 22202
NUMBER OF CLAIMS: 13
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Page(s)
LINE COUNT: 1273
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A film containing at least 5 wt % of an aromatic vinyl compound-α-olefin random copolymer having an aromatic vinyl compound content of from 1 to less than 99.9% by molar fraction and having head-to-tail chain structures comprising at least two aromatic vinyl compound units.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 13 OF 16 USPATFULL on STN
ACCESSION NUMBER: 2001:93616 USPATFULL
TITLE: Film and **stretch packaging** film
INVENTOR(S): Arai, Toru, Machida, Japan
PATENT ASSIGNEE(S): Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
(non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6248850	B1	20010619
APPLICATION INFO.:	US 1998-163603		19980930 (9)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1997-268402	19971001

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Wu, David W.
ASSISTANT EXAMINER: Harlan, R.
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

– cited in IDS

NUMBER OF CLAIMS: 16
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Figure(s); 2 Drawing Page(s)
LINE COUNT: 1239
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A film containing at least 5 wt % of an aromatic vinyl compound-α-olefin random copolymer having an aromatic vinyl compound content of from 1 to less than 99.9% by molar fraction and having head-to-tail chain structure comprising at least two aromatic vinyl compound units.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 14 OF 16 USPAT2 on STN
ACCESSION NUMBER: 2004:190907 USPAT2
TITLE: Cross-copolymerized olefin/aromatic vinyl compound/diene copolymer and process for its production
INVENTOR(S): Arai, Toru, Machida, JAPAN
Otsu, Toshiaki, Machida, JAPAN
Nakajima, Masataka, Machida, JAPAN
PATENT ASSIGNEE(S): Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, JAPAN (non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6878779	B2	20050412
APPLICATION INFO.:	US 2004-759084		20040120 (10)

RELATED APPLN. INFO.: Division of Ser. No. US 2002-78668, filed on 21 Feb 2002, Pat. No. US 6803422 Continuation-in-part of Ser. No. US 831358, Pat. No. US 6566453 A 371 of International Ser. No. WO 2000-JP6284, filed on 13 Sep 2000

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1999-258618	19990913
	JP 2000-184053	20000620
	JP 2001-44715	20010221
	JP 2001-221247	20010723

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Seidleck, James J.
ASSISTANT EXAMINER: Asinovsky, Olga
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.
NUMBER OF CLAIMS: 4
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 12 Drawing Figure(s); 10 Drawing Page(s)
LINE COUNT: 2502
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A highly uniform vinyl compound polymer-cross-copolymerized olefin/styrene/diene copolymer excellent in processability, mechanical properties, high temperature properties, compatibility and transparency, and its composition and a process for its production, are provided. This copolymer is a crossed polymer obtained by cross-copolymerizing an olefin/styrene/diene copolymer having a styrene content of from 0.03 mol % to 96 mol %, a diene content of from 0.0001 mol % to 3 mol % and the rest being an olefin, with an olefin/aromatic vinyl compound copolymer.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 15 OF 16 USPAT2 on STN
ACCESSION NUMBER: 2002:288259 USPAT2
TITLE: Cross-copolymerized olefin/aromatic vinyl compound/diene copolymer and process for its production

INVENTOR(S): Arai, Toru, Machida, JAPAN
Otsu, Toshiaki, Machida, JAPAN
Nakajima, Masataka, Machida, JAPAN
PATENT ASSIGNEE(S): Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, JAPAN
(non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6803422	B2	20041012
APPLICATION INFO.:	US 2002-78668		20020221 (10)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 831358, now patented, Pat. No. US 6566453

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1999-258618	19990913
	JP 2000-184053	20000620
	JP 2001-47715	20010221
	JP 2001-221247	20010723

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Seidleck, James J.
ASSISTANT EXAMINER: Asinovsky, Olga
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.
NUMBER OF CLAIMS: 25
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 0 Drawing Figure(s); 10 Drawing Page(s)
LINE COUNT: 2494
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A highly uniform vinyl compound polymer-cross-copolymerized olefin/styrene/diene copolymer excellent in processability, mechanical properties, high temperature properties, compatibility and transparency, and its composition and a process for its production, are provided. This copolymer is a crossed polymer obtained by cross-copolymerizing an olefin/styrene/diene copolymer having a styrene content of from 0.03 mol % to 96 mol %, a diene content of from 0.0001 mol % to 3 mol % and the rest being an olefin, with an olefin/aromatic vinyl compound copolymer.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 16 OF 16 USPAT2 on STN
ACCESSION NUMBER: 2001:128891 USPAT2
TITLE: Film and **stretch packaging** film
INVENTOR(S): Arai, Toru, Machida, JAPAN
Nakamura, Akihiko, Machida, JAPAN
Suzuki, Shigeru, Machida, JAPAN
Otsu, Toshiaki, Machida, JAPAN
Okamoto, Akio, Machida, JAPAN
PATENT ASSIGNEE(S): Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, JAPAN
(non-U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6417308	B2	20020709
APPLICATION INFO.:	US 2001-785285		20010220 (9)

RELATED APPLN. INFO.: Division of Ser. No. US 1998-163603, filed on 30 Sep 1998, now patented, Pat. No. US 6248850

	NUMBER	DATE
PRIORITY INFORMATION:	JP 1997-268402	19971001

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Wu, David W.

ASSISTANT EXAMINER: Harlan, R.
LEGAL REPRESENTATIVE: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.
NUMBER OF CLAIMS: 24
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Figure(s); 2 Drawing Page(s)
LINE COUNT: 1211
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A film containing at least 5 wt % of an aromatic vinyl compound-α-olefin random copolymer having an aromatic vinyl compound content of from 1 to less than 99.9% by molar fraction and having head-to-tail chain structures comprising at least two aromatic vinyl compound units.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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L4 ANSWER 9 OF 16 USPATFULL on STN
SUMM JP-A-3-163088 and JP-A-7-53618 disclose a styrene-ethylene copolymer wherein no normal styrene chain exists, i.e. a **pseudo random copolymer**, which is obtainable by using a complex having a so-called constrained geometrical structure. Here, a normal St chain means a chain of head-to-tail bonding. Further, in the following, styrene may sometimes be represented by St. The **pseudo random copolymer** is defined to be a copolymer in which no head-to-tail styrene chain structure is contained, and phenyl groups in the alternating structure of styrene-ethylene present in this **pseudo random copolymer**, have no stereoregularity. Further, as no normal styrene chain exists, the content of styrene can not exceeds 50 mol %. Such a **pseudo random copolymer** is not sufficiently satisfactory with respect to the mechanical properties such as breaking strength or solvent resistance.

SUMM JP-A-6-49132 and Polymer Preprints, Japan, 42, 2292 (1993) disclose a method for producing a similar styrene-ethylene copolymer wherein no normal St chain exists, i.e. a so-called **pseudo random copolymer**, by means of a catalyst comprising a cross-linked metallocene type Zr complex and a co-catalyst.

SUMM According to Polymer Preprints, Japan, vol. 42, 2292 (1993), phenyl groups in the alternating structure of styrene-ethylene present in this **pseudo random copolymer**, have no substantial stereoregularity. Further, like the case of a complex having a constrained geometrical structure, as no normal styrene chain exists, the content of styrene can not exceed 50 mol %. The activity is also practically inadequate.

SUMM A film is known which employs a so-called **pseudo random** ethylene-styrene **copolymer** having no head-to-tail styrene chain and no stereoregularity derived from styrene units. For example, U.S. Pat. No. 5,703,187 discloses a **pseudo random copolymer** having a styrene content of from 1.4 to 47 mol % obtained by using a so-called CGCT type catalyst, and a film employing it. JP-A-3-163088 and JP-7-53618 disclose **pseudo random copolymers** obtainable by means of a so-called CGCT type catalyst and films employing them. WO95/32095 discloses a (multi layer) shrinkable film employing a **pseudo random copolymer** obtainable by means of a similar CGCT type catalyst.

SUMM JP-A-10-60051 discloses an ethylene-styrene copolymer obtainable by means of a similar CGCT type catalyst, which is excellent in flexibility

and elastic recovery and excellent in transparency and which has a styrene content of particularly preferably from 14 to 30 mol %. However, when the copolymer having a styrene content which is disclosed to be particularly preferred, is employed as a stretch film, the mechanical properties (particularly tensile strength, elastic modulus), the film-forming property and the packaging machine compatibility are not satisfactory, and the elastic modulus in the prescribed styrene content range is too low (the flexibility is too high) as a stretch film. Further, the prescribed glass transition temperature is too low especially in a range where the styrene content is at most 10 mol %. Therefore, it is inadequate with respect to the molding processability as a packaging film, particularly as a **stretch packaging** film, the softness when it is touched with a hand, and the touched feeling.

SUMM **Stretch Packaging** Film

SUMM For **stretch packaging**, a polyvinyl chloride type film is mainly employed, and an olefin type film made of low density polyethylene, an ethylene-vinyl acetate copolymer, linear low density polyethylene or polypropylene, is partly employed.

SUMM Further, a problem has been pointed out such that when an automatic **stretch packaging** machine for conventional vinyl chloride type stretching films, is to be used, such a non-vinyl chloride type stretch film using a material having a relatively low initial elastic modulus, is likely to stretch, whereby transportation or cutting tends to be difficult.

SUMM From the foregoing, it is desired to develop a base material of a non-vinyl chloride type, which has specific mechanical properties such as an initial elastic modulus, elastic recovery, high transparency and proper temperature-dynamic property simultaneously and which is inexpensive, and a film, particularly a **stretch packaging** film, employing it.

SUMM It is an object of the present invention to overcome such drawbacks of the prior art and to provide a styrene-ethylene copolymer having a specific composition, a high molecular weight, high transparency and a glass transition point represented by a specific formula and further having a stereoregularity and a head-to-tail styrene chain structure, and a molded product made thereof. Further, the present invention is to solve the above problems and to provide a film, sheet or tube, particularly a film excellent in a packaging property and touch feeling, especially a **stretch packaging** film, which has a specific composition, excellent mechanical properties and high transparency and which has an elastic recovery property (finger pressure regaining property), low temperature characteristics and processability. A further object of the present invention is to provide an ethylene type copolymer having a specific composition, a high melting point (heat resistance) and high transparency, and an excellent mechanical property such as a high modulus of elasticity, and a molded product, particularly a film or a sheet, prepared by molding it.

SUMM Further, the present inventors have conducted extensive studies to overcome the drawbacks of conventional molded products as described above, particularly transparent films, sheets, tubes, various packaging films, particularly **stretch packaging** films, or a transparent soft vinyl chloride resin, and as a result, have surprisingly found that an ethylene-aromatic vinyl compound copolymer having a specific composition, obtained by a specific polymerization catalyst, satisfies high transparency, mechanical properties, elastic recovery, cold resistance, touch feeling, processability and transparency all together. Further, it has been found that the ethylene

type copolymer of the present invention is useful as a novel transparent resin, or in the form of a **stretch packaging** film, or further as a soft transparent resin to be substituted for a conventional transparent soft vinyl chloride resin or an olefin type elastomer, and the present invention has been accomplished.

SUMM The copolymer having a higher glass transition point, as represented by this formula, shows a relatively high glass transition point, whereby the flexibility of the molded product or film tends to decrease at a low temperature such as a cold area temperature or a refrigerating temperature. Further, if the glass transition point is lower than the value represented by this formula, when a molded product or film, particularly a **stretch packaging** film, is to be used at a temperature around room temperature, the tan δ value (loss tangent) by a dynamic viscoelasticity measurement tends to be too low, thus leading to a drawback such that the touch feeling as a film or the appearance or touch feeling of the film packaged product tends to be poor. Further, when film packaging is carried out by an automatic packaging machine or the like, return against elongation is so quick that a phenomenon is likely to take place such that folding of the film at the bottom of the tray tends to be impaired, or the cutting property tends to deteriorate.

SUMM On the other hand, with a so-called **pseudo random copolymer** which has been known heretofore, a head-to-tail chain structure of styrene can not be found even when the styrene content is at the maximum of about 50 mol %. Further, even if homopolymerization of styrene is attempted by means of a catalyst for producing a **pseudo random copolymer**, no polymer will be obtained. Although there may be a case where a very small amount of an atactic styrene homopolymer is obtainable depending upon e.g. the polymerization conditions, this should be understood to have been formed by cation polymerization or radical polymerization by co-existing methyl almoxane or an alkyl aluminum contained therein.

SUMM It is known that peaks of methylene carbon of a structure attributable to an inversion bond of styrene in a conventional **pseudo random copolymer** having no stereoregularity, are observed in two regions of from 34.0 to 34.5 ppm and from 34.5 to 35.2 ppm (e.g. Polymer Preprints, Japan, 42, 2292 (1993)).

SUMM Namely, it is useful as a molded product of a novel transparent resin, such as a film, sheet, tube or package, especially as a **stretch packaging** film, and further as a soft transparent resin to be substituted for conventional transparent soft vinyl chloride resin or an olefinic elastomer, in order to satisfy high transparency, mechanical properties (breaking strength, tensile modulus of elasticity), elastic recovery, hardness, cold resistance, touch feeling, processability and transparency simultaneously.

SUMM The relation of the initial modulus of elasticity (tensile modulus of elasticity) and the styrene content (mol %) of the ethylene-styrene copolymer to be used in the present invention, is from 25 MPa to 70 MPa at a content of at least 3 and less than 10%, from 30 MPa to 70 MPa at a content of at least 5 and less than 15%, and from 30 MPa to 70 MPa at a particularly preferred content of at least 5 to less than 10%, such being suitable for a film, particularly for a **stretch packaging** film. The characteristics and physical properties as a film, depend largely on the initial tensile modulus of elasticity (hereinafter referred to simply as the initial modulus) of the polymer to be used.

SUMM In the present invention, the initial tensile modulus of elasticity represents the modulus of elasticity at an elongation of 0% on a

stress-strain curve by a tensile test, and represents a Young's modulus in a low strain region (a linear elasticity region) in accordance with the Hooke's law on the stress-strain curve by the tensile test. A specific measuring method is disclosed, for example, in JIS K7113. For example, a film employing a polymer having an initial modulus of lower than 25 MPa, is elastic and easily be elongated, or has little tension against stress, whereby it has problems from the viewpoint of working efficiency such that it gives an unreliable impression when used for **stretch packaging**, and its cutting property is so poor that it is not suitable for an automatic packaging machine.

SUMM On the other hand, in the case of a film obtainable from a polymer having a initial modulus exceeding 70 MPa, such as a LLDPE film or a multilayer film containing it, it is hardly stretched, and when used for **stretch packaging**, an excess stress will be exerted to the packaged product, whereby the packaged product is likely to be deformed, crushed or wrinkled, such being undesirable. Therefore, when a film is employed for **stretch packaging**, the initial modulus of the polymer to be used is preferably within a certain predetermined range. Although it depends also on the particular application, a proper range of the initial modulus of the polymer to be used, is from 25 MPa to 70 MPa, preferably from 30 MPa to 70 MPa, particularly preferably from 30 MPa to 60 MPa, at 23° C.

SUMM In general, the initial modulus of a film will be improved by a stretching operation. Accordingly, in order to measure the initial modulus of the material itself, it is necessary to carry out the measurement of the initial modulus with respect to a film in a substantially non-stretched state, obtainable by press molding or extrusion molding involving no stretching. Especially when the film of the present invention is employed as a **stretch packaging** film, it is necessary to employ a polymer having, in addition to the above initial modulus, a proper elastic recovery from elongation i.e. a low elongation set. A film employing a material having a low elastic recovery such as a linear low density polyethylene (LLDPE), has problems such that the tension of the packaging film lowers and sagging will result due to e.g. a stress exerted during the storage or display of the packaged commercial product, or impressions due to finger pressing during the display, will remain to impair the outer appearance (finger pressure recovery being low).

SUMM The ethylene-styrene copolymer of the present invention wherein the styrene content is at least 3 and at most 10%, preferably at least 5 and less than 10%, by molar fraction, exhibits a high elastic recovery of at least 70%, particularly at least 75% and thus can be suitably used for a **stretch packaging** film.

SUMM In the case of a copolymer having a glass transition point higher than the one shown by this formula, the glass transition point is relatively high, whereby the film tends to be too hard at a low temperature such as a chilled storage temperature (5° C.) or a refrigerating temperature. Further, if the glass transition point is lower than the value represented by this formula, when the film, particularly the **stretch packaging** film, is used at about room temperature, the tan δ-value (loss tangent) by the measurement of the dynamic viscoelasticity tends to be too low, thus leading to a drawback that the touch as a film, the outer appearance of the film packaged product and the feel are poor. Further, when it is used for packaging by an automatic packaging machine or the like, the return against elongation is so quick that, for example, the holding back of the film at the bottom of the tray tends to be impaired, or the cutting property tends to deteriorate. Here, the glass transition point is a glass transition point obtainable by an inflection point method by the DSC measurement.

SUMM It is apparent that high transparency is required for a transparent film or a transparent **stretch packaging** film. If the transparency is low, it tends to be difficult to ascertain the content of the packaged product, whereby the convenience and the appearance will be impaired. The film made of the copolymer of the present invention may have a haze of at most 1.5% in a thickness of from 3 μm to 100 μm.

SUMM The molded product of the present invention, particularly the film or the **stretch packaging** film, may be subjected to surface treatment such as corona, ozone or plasma treatment, coating of an anti-fogging agent, coating of a lubricant, printing or the like.

SUMM Among molded products of the present invention, the film or the **stretch packaging** film, can be prepared as a stretched film subjected to monoaxial or biaxial stretching orientation, as the case requires.

SUMM Films or **stretch packaging** films of the present invention may be bonded to one another or to materials of other thermoplastic resins, by fusion by means of heat, ultrasonic or high frequency waves or by a technique such as bonding by means of e.g. a solvent.

SUMM Further, when it is used as a **stretch packaging** film for foods, packaging can be suitably conducted by an automatic packaging machine or by a manual packaging machine.

SUMM For the production of a transparent film or a **stretch packaging** film of the present invention, a usual extrusion film forming method such as an inflation system or a T-die system, may be employed.

SUMM The thickness of the film or the **stretch packaging** film of the present invention is not particularly limited, but it is usually from 3 μm to 1 mm, preferably from 10 μm to 0.5 mm. To use it as a **stretch packaging** film for foods, the thickness is preferably from 5 to 100 μm, more preferably from 10 to 50 μm.

SUMM For the purpose of improving the physical properties, the film or the **stretch packaging** film of the present invention may be laminated with a film of e.g. isotactic or syndiotactic polypropylene, high density polyethylene, low density polyethylene (LDPE or LLDPE), polystyrene or polyethylene terephthalate.

SUMM Further, the film or the **stretch packaging** film of the present invention has self-tackiness, since the contained ethylene-styrene copolymer itself has self-tackiness or adhesiveness to some extent. In a case where a stronger self-tackiness is required, it may be laminated with other film having self-tackiness to obtain a multilayered film.

SUMM Further, when a **stretch packaging** film having a non-tacky surface and a tacky surface on the front and rear sides, is desired, other non-tacky surface may be made of an ethylene-styrene copolymer having a higher ethylene content or a linear low density polyethylene having a density of at least 0.916 g/cm.sup.3 in a thickness of from 5 to 30% of the total thickness, the interlayer may be made of the ethylene-styrene copolymer to be used in the present invention, and the tacky layer may be made of one having from 2 to 10 wt % of liquid polyisobutylene, liquid polybutadiene or the like incorporated to the ethylene-styrene copolymer to be used in the present invention, one having from 2 to 10 wt % of liquid polyisobutylene,

liquid polybutadiene or the like incorporated to a linear low density polyethylene having a density of at least 0.916 g/cm.sup.3, or an ethylene/vinyl acetate copolymer, in a thickness of from 5 to 30% of the total thickness, to obtain a multilayer film. Otherwise, it is also possible to incorporate a suitable tackifier in a suitable amount.

SUMM Specific applications of the film of the present invention are not particularly limited, but it is useful as a general packaging material or a container and can be used for e.g. a packaging film, a bag or a pouch. Especially, it can suitably be used as a **stretch packaging** film or a pallet stretching film for food packaging.

DETD Using a **stretch packaging** film obtained by film forming, the packaging machine aptitude was evaluated by means of an automatic packaging machine.

DETD A content was wrapped with a **stretch packaging** film obtained by film forming and stored at 5° C. for 24 hours, whereupon the tensional state of the packaging film as its appearance, the presence or absence of formation of wrinkles, sagging or the like and the recovery after pressing the film for from 5 to 10 mm with a finger, were evaluated as a whole. One which is susceptible to wrinkles, sagging or the like when touched with a hand and which shows low recovery after pressed with a finger, was designated by X.

CLM What is claimed is:

14. A **stretch packaging** film characterized in that it is made of the film as defined in claim 8.

15. The **stretch packaging** film according to claim 14, which is for food packaging.

=> d 14 1 hit

L4 ANSWER 1 OF 16 USPATFULL on STN

SUMM [0007] JP-A-3-163088 and JP-A-7-53618 disclose ethylene/styrene copolymers having a styrene content of at most 50 mol % and containing no normal (i.e. head-to-tail) styrene chain, so-called **pseudo-random copolymers**, obtainable by means of a complex having a so-called constrained geometric structure.

SUMM [0008] JP-A-6-49132 and Polymer Preprints, Japan, 42, 2292 (1993) disclose processes for producing similar ethylene/styrene copolymers having an aromatic vinyl compound content of at most 50 mol % and containing no normal aromatic vinyl compound chain, i.e. **pseudo -random copolymers**, by means of a catalyst comprising a crosslinked metallocene type Zr complex and a cocatalyst. These copolymers have no stereoregularity derived from aromatic vinyl compound units.

DETD [0144] On the other hand, with conventional so-called **pseudo-random copolymers**, no styrene head-to-tail chain structure is observed even when the styrene content is in the vicinity of the maximum of 50 mol %. Further, even if homopolymerization of styrene is attempted by means of a catalyst for the preparation of a **pseudo-random copolymer**, no polymer can be obtained. Depending upon the polymerization conditions, etc., a very small amount of atactic styrene homopolymer may sometimes be obtainable, but this should be understood to have been formed by cation polymerization or radical polymerization due to methylalumoxane which is coexists or due to an alkylaluminum included therein.

DETD [0212] In a case where the cross-copolymer of the present invention is used as a film or a **stretch packaging** film, the thickness is not particularly limited, but it is usually from 3 μm to

1 mm, preferably from 10 μm to 0.5 mm. To use it as a **stretch packaging** film for foods, the thickness is preferably from 5 to 100 μm, more preferably from 10 to 50 μm.

DETD [0213] For the production of a transparent film or a **stretch packaging** film made of the cross-copolymer of the present invention, a common extrusion film-forming method such as an inflation system or a T-die system, may be employed. For the purpose of improving the physical properties, the film or the **stretch packaging** film of the present invention may be laminated with other suitable film, for example, a film of e.g. isotactic or syndiotactic polypropylene, high density polyethylene, low density polyethylene (LDPE or LLDPE), polystyrene, polyethylene terephthalate or an ethylene/vinyl acetate copolymer (EVA).

DETD [0214] Further, the film or the **stretch packaging** film of the present invention may have self-tackiness or an adhesive property by suitably selecting the composition of the main chain or the cross chain. However, if a stronger self-tackiness is required, it may be laminated with other film having self-tackiness to obtain a multi-layered film.

DETD [0215] Further, when a **stretch packaging** film having a non-tacky surface and a tacky surface on the front and rear sides, is desired, the non-tacky surface may be made of an ethylene/styrene copolymer having a higher ethylene content or a linear low density polyethylene having a density of at least 0.916 g/cm.sup.3 in a thickness of from 5 to 30% of the total thickness, the interlayer may be made of the ethylene/styrene copolymer to be used in the present invention, and the tacky layer may be made of one having from 2 to 10 weight % of liquid polyisobutylene, liquid polybutadiene or the like incorporated to the ethylene/styrene copolymer to be used in the present invention, one having from 2 to 10 weight % of liquid polyisobutylene, liquid polybutadiene or the like incorporated to a linear low density polyethylene having a density of at least 0.916 g/cm.sup.3, or an ethylene/vinyl acetate copolymer, in a thickness of from 5 to 30% of the total thickness, to obtain a multilayer film. Otherwise, it is also possible to incorporate a suitable tackifier in a suitable amount.

DETD [0216] Specific applications of the film of the present invention are not particularly limited, but it is useful as a general packaging material or a container and can be used for e.g. a packaging film, a bag or a pouch. Especially, it can suitably be used as a **stretch packaging** film or a pallet stretching film for food packaging.

DETD [0217] To the molded product, particularly the film or the **stretch packaging** film, of the present invention, surface treatment with e.g. corona, ozone or plasma, coating with an anti-fogging agent, coating with a lubricant or printing, may be applied, as the case requires.

DETD [0218] Among molded products of the present invention, the film or the **stretch packaging** film may be prepared as a monoaxially or biaxially stretched film, as the case requires.

DETD [0219] The film or the **stretch packaging** film of the present invention may be bonded to the film itself or to a material such as other thermoplastic resin by fusion by means of e.g. heat, supersonic waves, microwave or by bonding by means of e.g. a solvent.

DETD [0220] Further, when used as a **stretch packaging** film for foods, it can be suitably packaged by an automatic packaging machine or a manual packaging machine.

=> d l4 2 hit

L4 ANSWER 2 OF 16 USPATFULL on STN

SUMM [0006] JP-A-3-163088 and JP-A-7-53618 disclose ethylene/styrene copolymers having a styrene content of at most 50 mol % and containing regular (i.e. head-to-tail) styrene chain, so-called **pseudo-random copolymers**, obtainable by means of a complex

having a so-called constrained geometric structure.

SUMM [0007] JP-A-6-49132 and Polymer Preprints, Japan, 42, 2292 (1993) disclose processes for producing similar ethylene/styrene copolymers having an aromatic vinyl compound content of at most 50 mol % and containing regular aromatic vinyl compound chain, so-called **pseudo-random copolymers**, by means of a catalyst comprising a bridged metallocene type Zr complex and a cocatalyst. These copolymers have no stereoregularity derived from aromatic vinyl compound units.

DETD [0127] In a case where the copolymer of the present invention is used as a film or a **stretch packaging** film, the thickness is not particularly limited, but it is usually from 3 μm to 1 mm, preferably from 10 μm to 0.5 mm. To suitably use it as a **stretch packaging** film for foods, the thickness is preferably from 5 to 100 μm, more preferably from 10 to 50 μm.

DETD [0128] For the production of a transparent film or a **stretch packaging** film made of the copolymer of the present invention, a common extrusion film-forming method such as an inflation system or a T-die system, may be employed. For the purpose of improving the physical properties, the film or the **stretch packaging** film of the present invention may be laminated with other suitable film, for example, a film of e.g. isotactic or syndiotactic polypropylene, high density polyethylene, low density polyethylene (LDPE or LLDPE), polystyrene, polyethylene terephthalate or an ethylene/vinyl acetate copolymer (EVA).

DETD [0129] Further, the film or the **stretch packaging** film of the present invention may have self-tackiness or an adhesive property. However, if a stronger self-tackiness is required, it may be laminated with other film having self-tackiness to obtain a multi-layered film.

DETD [0130] Specific applications of the film of the present invention are not particularly limited, but it is useful as a general packaging material or a container and can be used for e.g. a packaging film, a bag or a pouch. Especially, it can suitably be used as a **stretch packaging** film or a pallet stretching film for food packaging.

DETD [0131] To the molded product, particularly the film or the **stretch packaging** film, of the present invention, surface treatment with e.g. corona, ozone or plasma, coating with an anti-fogging agent, coating with a lubricant or printing, may be applied, as the case requires.

DETD [0132] Among molded products of the present invention, the film or the **stretch packaging** film may be prepared as a monoaxially or biaxially stretched film, as the case requires.

DETD [0133] The film or the **stretch packaging** film of the present invention may be bonded to the film itself or to a material such as other thermoplastic resin by fusion by means of e.g. heat, supersonic waves, high frequency wave or by bonding by means of e.g. a solvent.

DETD [0134] Further, when used as a **stretch packaging** film for foods, it can be suitably packaged by an automatic packaging machine or a manual packaging machine.

=> d his

(FILE 'HOME' ENTERED AT 15:00:53 ON 23 JUN 2005)
SET ABBR ON PERM
SET PLURALS ON PERM

FILE 'INPADOC' ENTERED AT 15:01:24 ON 23 JUN 2005
L1 1 S WO 9532095/PN
L2 0 S (SUBSTANTIALLY RANDOM OR PSEUDO(1W)RANDOM)(5W)(COPOLYMER OR I
L3 3 S (STRAIN(1A)(CHANGE OR DIFFEREN?))(4A)FILM

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     FILE 'USPATFULL, USPAT2, CAPLUS, JAPIO' ENTERED AT 15:07:13 ON 23 JUN 2005
L4           16 S (SUBSTANTIALLY RANDOM OR PSEUDO(1W)RANDOM)(5W)(COPOLYMER OR I

=> s (strain(1a)(change# or differen?)(4a)film
UNMATCHED LEFT PARENTHESIS '(STRAIN'
The number of right parentheses in a query must be equal to the
number of left parentheses.

=> s (strain(1a)(change# or differen?))(4a)film
L5          153 (STRAIN(1A)(CHANGE# OR DIFFEREN?))(4A) FILM

=> s (hold? or fasten?)(1w)cargo or stretch packag? or stretch wrap?
L6         2499 (HOLD? OR FASTEN?)(1W) CARGO OR STRETCH PACKAG? OR STRETCH WRAP?

=> s l5 and l6
L7            4 L5 AND L6

=> d l7 1-4 ibib abs

L7   ANSWER 1 OF 4  USPATFULL on STN
ACCESSION NUMBER:        2004:63567  USPATFULL
TITLE:                   Film for fastening cargo during
                         transportation and method for fastening
                         cargo using the same
INVENTOR(S):             Arimoto, Masashi, Sodegaura-shi, JAPAN
                         Kimura, Tomohiko, Kuga-gun, JAPAN
                         Takeyama, Saburou, Ichihara-shi, JAPAN
PATENT ASSIGNEE(S):      Mitsui Chemicals, Inc., Tokyo, JAPAN (non-U.S.
                         corporation)

                              NUMBER        KIND    DATE
                         ---------------- ------ --------
PATENT INFORMATION:      US 2004048085      A1   20040311
                         US 2005118444      A9   20050602
APPLICATION INFO.:       US 2003-601871     A1   20030624  (10)

                                NUMBER         DATE
                         ------------------ --------
PRIORITY INFORMATION:    JP 2002-182996     20020624
DOCUMENT TYPE:           Utility
FILE SEGMENT:            APPLICATION
LEGAL REPRESENTATIVE:    BURNS DOANE SWECKER & MATHIS L L P, POST OFFICE BOX
                         1404, ALEXANDRIA, VA, 22313-1404
NUMBER OF CLAIMS:        14
EXEMPLARY CLAIM:         1
LINE COUNT:              635
AB       A film and method for fastening cargo during
         transportation wherein the film has a percentage
         strain change 100 hours after applying a load of 3.5
         MPa at a temperature of 23° C. of not more than 2.0%, and a
         percentage strain change 100 hours after applying a load of 0.5 MPa at a
         temperature of 55° C. of not more than 2.5%. Moreover, it is
         preferable for the elastic modulus at a temperature of 23° C. to
         be not more than 60 MPa, and the elastic modulus at a temperature of
         55° C. to be not more than 20 MPa. Such a film can be formed from
         substantially random interpolymer(s) each comprising 1 to 99 mol % of
         polymer units derived from an aromatic vinyl or vinylidene monomer
         and/or a hindered aliphatic or cycloaliphatic vinyl or vinylidene
         monomer, and 1 to 99 mol % of polymer units derived from at least one
         α-olefin having 2 to 20 carbon atoms. The above film has
         a low percentage strain change compared with
         films made of EVA or a urethane resin, and hence the ability to
         hold/fasten products during transportation is excellent, and thus the
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= apps herein

products can be prevented from being damaged.

L7 ANSWER 2 OF 4 USPATFULL on STN
ACCESSION NUMBER: 90:68566 USPATFULL
TITLE: High tensile wrapping apparatus
INVENTOR(S): Lancaster, III, Patrick R., Louisville, KY, United States
Lancaster, William G., Louisville, KY, United States
PATENT ASSIGNEE(S): Lantech, Inc., Louisville, KY, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 4953336		19900904
APPLICATION INFO.:	US 1989-395041		19890817 (7)

DISCLAIMER DATE: 20060919
RELATED APPLN. INFO.: Continuation of Ser. No. US 1988-186649, filed on 19 Apr 1988, now patented, Pat. No. US 4866909 which is a continuation of Ser. No. US 1985-804542, filed on 4 Dec 1985, now abandoned which is a continuation-in-part of Ser. No. US 1984-582779, filed on 23 Feb 1984, now abandoned
DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Sipos, John
LEGAL REPRESENTATIVE: Finnegan, Henderson, Farabow, Garrett & Dunner
NUMBER OF CLAIMS: 4
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 26 Drawing Figure(s); 9 Drawing Page(s)
LINE COUNT: 1387
AB A film web is dispensed from a film web dispenser and wrapped around a bundle by moving the bundle into an applicator mandrel, revolving the film web dispenser relative to the applicator mandrel, dispensing the film web from the film web dispenser on to the applicator mandrel at a constant supply speed. The film web, wrapped around the applicator mandrel, is transported beyond the downstream end of the applicator mandrel, the bundle is moved beyond the downstream end of the applicator mandrel and the film web is applied from the applicator mandrel onto the bundle so as provide a containment force in the film web after it is applied onto the bundle. A dual stage wrapping system is used in such a manner that each orbiting dispenser is restrained to dispense the film web at a constant supply speed less than the lowest film demand speed at the applicator mandrel and independent of the tension on the film web between the film web dispenser and the applicator mandrel. The applicator mandrel is positioned to resist crushing or disalignment of the bundle or subunits of the bundle within the applicator mandrel and also modifies its position to modify the wrapping cross-section of the bundle so that the web strain elongation varies substantially within a linear wrap force range above the yield point of the stress strain characteristics of the film web between the film web dispenser and the applicator mandrel.

L7 ANSWER 3 OF 4 USPATFULL on STN
ACCESSION NUMBER: 89:77478 USPATFULL
TITLE: High tensile wrapping process
INVENTOR(S): Lancaster, III, Patrick R., Louisville, KY, United States
Lancaster, William G., Louisville, KY, United States
PATENT ASSIGNEE(S): Lantech, Inc., Louisville, KY, United States (U.S. corporation)

	NUMBER	KIND	DATE

PATENT INFORMATION:	US 4866909	19890919
APPLICATION INFO.:	US 1988-186649	19880419 (7)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1985-804542, filed on 4 Dec 1985, now abandoned which is a continuation-in-part of Ser. No. US 1984-582779, filed on 23 Feb 1984, now abandoned	
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	Granted	
PRIMARY EXAMINER:	Sipos, John	
LEGAL REPRESENTATIVE:	Finnegan, Henderson, Farabow, Garrett & Dunner	
NUMBER OF CLAIMS:	70	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	26 Drawing Figure(s); 9 Drawing Page(s)	
LINE COUNT:	1718	

AB A film web is dispensed from a film web dispenser and wrapped around a bundle by moving the bundle into an applicator mandrel, revolving the film web dispenser relative to the applicator mandrel, dispensing the film web from the film web dispenser on to the applicator mandrel at a constant supply speed. The film web, wrapped around the applicator mandrel, is transported beyond the downstream end of the applicator mandrel, the bundle is moved beyond the downstream end of the applicator mandrel and the film web is applied from the applicator mandrel onto the bundle so as provide a containment force in the film web after it is applied onto the bundle. A dual stage wrapping system is used in such a manner that each orbinting dispenser is restrained to dispense the film web at a constant supply speed less than the lowest film demand speed at the applicator mandrel and independent of the tension on the film web between the film web dispenser and the applicator mandrel. The applicator mandrel is positioned to resist crushing or disalignment of the bundle or subunits of the bundle within the applicator mandrel and also modified its position to modify the wrapping cross-section of the bundle so that the web strain elongation varies substantially within a linear wrap force range above the yield point of the stress strain characteristics of the film web between the film web dispenser and the applicator mandrel.

L7 ANSWER 4 OF 4 USPAT2 on STN

ACCESSION NUMBER:	2004:63567 USPAT2	
TITLE:	FILM FOR **FASTENING CARGO** DURING TRANSPORTATION AND METHOD FOR **FASTENING CARGO** USING THE SAME	
INVENTOR(S):	Arimoto, Masashi, Sodegaura-shi, JAPAN Kimura, Tomohiko, Kuga-gun, JAPAN Takeyama, Saburou, Ichihara-shi, JAPAN	= applies herein
PATENT ASSIGNEE(S):	Mitsui Chemicals, Inc., Tokyo, JAPAN (non-U.S. corporation)	

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 2005118444	A9	20050602	
APPLICATION INFO.:	US 2003-601871	A1	20030624	(10)

	NUMBER	DATE
PRIORITY INFORMATION:	JP 2002-182996	20020624

DOCUMENT TYPE:	Utility
FILE SEGMENT:	APPLICATION
LEGAL REPRESENTATIVE:	BURNS DOANE SWECKER & MATHIS L L P, POST OFFICE BOX 1404, ALEXANDRIA, VA, 22313-1404, US
NUMBER OF CLAIMS:	14
EXEMPLARY CLAIM:	1
LINE COUNT:	616

AB A film and method for **fastening cargo** during transportation wherein the **film** has a percentage **strain change** 100 hours after applying a load of 3.5 MPa at a temperature of 23° C. of not more than 2.0%, and a percentage strain change 100 hours after applying a load of 0.5 MPa at a temperature of 55° C. of not more than 2.5%. Moreover, it is preferable for the elastic modulus at a temperature of 23° C. to be not more than 60 MPa, and the elastic modulus at a temperature of 55° C. to be not more than 20 MPa. Such a film can be formed from substantially random interpolymer(s) each comprising 1 to 99 mol % of polymer units derived from an aromatic vinyl or vinylidene monomer and/or a hindered aliphatic or cycloaliphatic vinyl or vinylidene monomer, and 1 to 99 mol % of polymer units derived from at least one α-olefin having 2 to 20 carbon atoms. The above **film** has a low percentage **strain change** compared with **films** made of EVA or a urethane resin, and hence the ability to hold/fasten products during transportation is excellent, and thus the products can be prevented from being damaged.

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L7 ANSWER 2 OF 4 USPATFULL on STN

SUMM As shown in FIG. 8, film webs exhibit a stress-strain curve having a steep initial linear portion 140E where elastic behavior is present and a gradual second linear portion 140P where plastic behavior is present. In between these two linear ranges is an intermediate range or region on the stress-strain curve commonly known as the yield point 141. It is in the range of this yield point that the stress-strain behavior of the film web changes between substantially elastic to plastic. Film webs stretched above yield point gain significantly in modulus and ultimate strength. For instance, a low density polyethylene film web will increase its ultimate strength in pounds per square inch of cross-sectional area by 300% after being elongated approximately 300%. Therefore, current **stretch wrapping** operations use prestretch subsystems in the film web dispenser as a matter of course.

DETD To perform the process of the present invention without prestretching the film web, upstream roller 72 is allowed to freewheel by removing chain 77 or otherwise decoupling gears 76 and 78 in any well-known conventional manner. Alternatively, roller 72 could be removed. This results in a **different** stress-**strain** relation on the **film** web between the downstream roller 74 an application mandrel 180. In accordance with the present invention, if the film web is stretched only between downstream roller 74 and applicator mandrel 180 its stress-strain relationship is shown in FIG. 15 as curve 273. This curve exhibits a broad yield point region 272 followed by a broad linear wrap force range 271 during which plastic deformation occurs in the film web. This linear wrap force range is broader than the linear wrap force range 277 for pre-stretched film.

CLM What is claimed is:

1. An apparatus for **stretch wrapping** a bundle with a film web dispensed from a film web dispenser comprising: a film web dispenser for dispensing a film web; means for maintaining a substantially constant supply speed of the film web at the film web dispenser by preventing the supply speed of the film web at the film web dispenser from increasing and preventing the supply speed of the film web at the film web dispenser from decreasing; an applicator mandrel having a noncircular cross-section; means for revolving the film web dispenser relative to the applicator mandrel to wrap the film web onto the applicator mandrel; means for moving a bundle through the applicator mandrel; means for transferring the film web from the applicator mandrel onto the bundle so as to provide a containment force in the film web

after it is applied onto the bundle.

4. An apparatus for **stretch wrapping** a bundle with film webs dispensed from film web dispensers comprising: a first film web dispenser for dispensing a first film web and a second film web dispenser for dispensing a second film web; means for maintaining a substantially constant supply speed of the film webs at the film web dispensers by preventing the supply speed of the film webs at the film web dispensers from increasing and preventing the supply speed of the film webs at the film web dispensers from decreasing; an applicator mandrel having a noncircular cross-section; means for revolving the first film web dispenser relative to the applicator mandrel in a first circular direction and for revolving the second film web dispenser relative to the applicator mandrel in a second circular direction opposite the first circular direction to wrap the first and second film webs onto the applicator mandrel; means for moving a bundle through the applicator mandrel; means for transferring the film webs from the applicator mandrel onto the bundle so as to provide a containment force in the film webs after they are applied onto the bundle.

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COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	105.07	117.16

STN INTERNATIONAL LOGOFF AT 15:17:53 ON 23 JUN 2005